

Amendment

U.S. Patent Application Serial No. 09/256,647

REMARKS

Claims 1-3, 5-9, and 16-33 are pending in the subject application; claims 1-9 and 16-23 have been examined: claims 1-3, 7-9 and 16-22 stand rejected, and claims 4-6 and 23 are indicated as containing allowable subject matter. By the above amendments, claims 1, 5, 6, 9, 16 and 19-22 have been amended, claims 4 and 18 have been canceled, and new claims 24-33 have been added. Favorable reconsideration of the application and allowance of all of the pending claims are respectfully requested in view of the above amendments and the following remarks.

Applicant thanks the Examiner for indicating the allowability of the subject matter of claims 4-6 and 23.

The title of the invention is objected to as being non-descriptive. Applicant has amended the title of the invention to be more descriptive of the invention to which the claims are directed. Accordingly, the Examiner is respectfully requested to withdraw the objection to the title.

Claim 9 is objected to as containing a minor informality. Applicant has amended claim 9 to eliminate the informality noted by the Examiner; accordingly, the Examiner is respectfully requested to withdraw the objection to claim 9.

Claims 19-22 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. As originally presented, these claim all depended from independent claim 18. Independent claim 18 has been replaced by new independent claim 24. Claim 19-22 have been amended to depend from claim 24 and to eliminate any indefiniteness. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 19-22.

Claims 1-3 and 7-9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,205,413 to Bisdikian et al. in view of U.S. Patent No. 6,327,620 to Tams et al. However, the Examiner indicates that the subject matter of dependent claims 4-6 would be allowable if rewritten in independent form. Accordingly, Applicant has amended independent claim 1 to include the subject matter of claim 4. Claim 4 has been canceled, and claims 5 and 6 have been

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amended to depend directly from claim 1. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-3 and 7-9.

Claim 18 stands rejected under 35 U.S.C. §102(e) as being anticipated by Bisdikian, and dependent claims 19-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bisdikian. Applicant has canceled claim 18 and replaced canceled claim 18 with new independent claim 24, thereby rendering moot this rejection (dependent claims 19-22 have been amended to depend from new claim 24). Applicant respectfully submits that new claim 24 and dependent claims 19-22 are patentable over Bisdikian for the following reasons.

Independent claim 24 sets forth a method of monitoring network-based services over a distributed network accessible by user devices capable of collecting data about end-user experience and communicating network performance data to an experience test server. The claimed method requires: configuring the user devices to notify the experience test server of an availability to perform network tests in response to being connected to the distributed network; distributing instructions from the experience test server to the user devices that are available to perform network tests, in accordance with notifications from the user devices, wherein at least some of the instructions direct the user devices to perform network tests; and collecting, at the experience test server, network performance data generated by the user devices that perform the network tests.

Bisdikian does not disclose or suggest configuring user devices to notify an experience test server of an availability to perform network tests in response to being connected to a distributed network. Nor does Bisdikian disclose or suggest distributing instructions from an experience test server to user devices that are available to perform network tests, in accordance with notifications from the user devices. Consequently the subject matter of claim 24 and its dependent claims is not anticipated by and would not have been obvious in view of Bisdikian.

More specifically, Bisdikian discloses a network performance monitoring system that employs a "virtual subscriber" that emulates the actions of a typical end-user subscriber by requesting specific services and keeping track of network response times and other performance

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measurements. In principle, the virtual subscriber provides test results that would reflect an actual subscriber's perception of the quality of service. The virtual subscriber is not operated by a "real" end-user; rather, a technician configures the virtual subscriber to request file transfers by specifying a service request profile and time intervals over which such requests are generated. As explained at column 5, lines 37-44 and shown in Fig. 4, the virtual subscriber initiates each test in a sequence of tests by sending a "send me a file" request to a particular file server, and collects appropriate performance data related to the resulting file transfer. Thus, in the system disclosed by Bisdikian, the testing process, including the sequence and types of tests, is controlled from the virtual subscriber, with each testing event being scheduled and initiated by a request from the virtual subscriber.

Unlike method claim 24, which requires configuring user devices to notify an experience test server of an availability to perform network tests in response to being connected to a distributed network, Bisdikian does not disclose or suggest that the virtual subscribers notify any server of their availability to perform tests. Likewise, Bisdikian does not disclose or suggest distributing test instructions from a server to virtual subscribers that are available to perform network tests based on notifications of availability from the virtual subscribers. Such notification is unnecessary in Bisdikian's system, since the virtual subscribers are dedicated to the sole purpose of testing. The notification of availability and the consequential distribution of tests recited in claim 24 are required in the testing scheme of the present invention, because the user devices are operated by actual users and are available to perform tests only when users choose to connect their respective devices to the network. Consequently, each individual user device is available for performing testing only when a user happens to connect the device to the network. This intermittent, unpredictable availability of the user devices to perform tests introduces notification and distribution requirements that are simply not necessary in Bisdikian's virtual subscriber scheme and certainly not described or suggested by Bisdikian's disclosure. Thus, the subject matter of claim 24 and its dependent claims is not anticipated by and would not have been obvious from Bisdikian. Accordingly, the Examiner is respectfully requested to find claim 24 and its dependent claims allowable.

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Applicant has added new claims 25 and 26 which depend from claim 24 and should therefore also be allowable. Support for claims 25 and 26 is found in various places throughout the specification, including page 10, lines 9-15.

Claims 16 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bisdikian in view of U.S. Patent No. 6,321,264 to Fletcher et al. Applicant respectfully traverses this rejection insofar as it applies to amended claim 16 and its dependent claims.

Claim 16 sets forth a method of monitoring end-user experience of a plurality of users operating a plurality of interfaces to a distributed network, wherein each of the plurality of users is associated with an account on the distributed network and a service level and wherein compliance with the service level of a user is determined, at least in part, from the monitored end-user experience. As amended, claim 16 requires: detecting that a user invokes a connection code to connect a client system to the distributed network; in response to the user invoking the connection code, monitoring the connection code to obtain user experience data about the connection process, wherein the user experience data is data relating to the user's experience with the distributed network; and transmitting the data obtained from the connection process to an experience test server, wherein the experience test server is a collector of user experience test server.

As explained above in the context of claim 24, Bisdikian's system employs virtual subscribers to perform network tests and collect data related to network performance. Bisdikian does not disclose or suggest running network performance test from "real" user devices or monitoring such user devices for user experience data. Consequently, there is no disclosure or suggestion in Bisdikian to detect that a user invokes a connection code to connect a client system to the distributed network and to monitor the connection code to obtain user experience data about the connection process in response to the user invoking the connection code, as required by claim 16. In other words, there is no suggestion in the virtual subscriber approach described in Bisdikian to have a connection or causal relationship between a user invoking a connection code and the monitoring of the connection code to obtain user experience. Amended claim 16 requires this causal relationship.

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Bisdikian's data is collected by virtual subscribers without regard to whether or not users also happen to be connected to the network.

The Examiner cites Fletcher for a teaching of a system in which a network manager determines whether collected data satisfies the provisions of a service level agreement. However, like Bisdikian, Fletcher does not disclose or suggest monitoring a connection code in response to a user invoking a connection code to obtain user experience data; thus, Fletcher does not make up for the deficiencies of Bisdikian. Consequently, the subject matter of claim 16 and its dependent claims would not have been (and could not have been) obvious from the teachings of Bisdikian and Fletcher taken singly or in any combination. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 16 and 17.

The Examiner indicates that claim 23 (23/16) would be allowable if rewritten in independent form. The Examiner is requested to hold in abeyance the rewriting of claim 23 until the Examiner has had an opportunity to reconsider and withdraw the rejection of claim 16 in view of the foregoing remarks.

Applicant has added new claims 27-33 which claim a network monitoring system. These claims substantially parallel independent method claim 24 and its dependent claims and should therefore be allowable over the prior art of record for the reasons set forth above. In particular, independent claim 27 sets forth a network monitoring system for monitoring network-based services over a distributed network, comprising: a plurality of user devices capable of performing network tests and collecting data about end-user experience, wherein the user devices are configured to notify an experience test server of an availability to perform network tests in response to being connected to the distributed network; and the experience test server, configured to receive availability notifications from the user devices and to distribute instructions to the user devices that are available to perform network tests, wherein at least some of the instructions direct the user devices to perform network tests, and wherein the experience test server collects network performance data generated by the user devices that perform the network tests. Support for claims 27-33 is found throughout the

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specification.

In view of the foregoing, Applicant respectfully requests the Examiner to find the application to be in condition for allowance with claims 1-3, 5-9 and 16-33. However, if for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is respectfully requested to call the undersigned attorney to discuss any unresolved issues and to expedite the disposition of the application.

Filed concurrently herewith is payment in the amount of \$27 (small entity) for three claims in excess of the previously-paid-for twenty three claims. Also filed concurrently herewith is a Petition for an Extension of Time (with payment of the \$460 small entity three-month extension of time fee). Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 05-0460.

Respectfully submitted,



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APPENDIX

Version with markings to show changes made.

IN THE SPECIFICATION:

Please amend the original Title of the Invention on page 1, line 3 of the specification as follows:

[NETWORK MONITORING SYSTEM] METHODS AND APPARATUS FOR MONITORING END-USER EXPERIENCE IN A DISTRIBUTED NETWORK

IN THE CLAIMS:

Please cancel claims 4 and 18 without prejudice or disclaimer of the subject matter therein.

Please amend claims 1, 5, 6, 9, 16 and 19-22 as follows.

1. (Amended) A network performance monitoring system comprising:

a plurality of user modules, wherein each user module operates on a unique user machine coupled to one or more provider servers;

an experience test server for collecting data from the plurality of user modules, wherein the collected data includes at least one performance datum relating to user experience with a link from the user machine to the provider server; and

means for cleansing the collected data to account for variable user configurations, wherein the means for cleansing identifies when given data samples with disparate values represent similar samplings due to user configuration variations.

5. (Amended) The apparatus of claim [4] 1, wherein the data samples represent point-of-presence IDs and the disparate values result from user variations in representations of point-of-presence IDs.

6. (Amended) The apparatus of claim [4] 1, wherein the data samples are clock times and the disparate values result from user variations in local clocks.

9. (Amended) The apparatus of claim 7, wherein the logic is logic programmed to allocate tests based on one or more criterion, wherein the one or more criterion are selected from a test type, matching test parameters, maximum number of tests, test durations and conditions under which [test] tests can be allocated.

16. (Amended) A method of monitoring end-user experience of a plurality of users operating a plurality of interfaces to a distributed network, wherein each of the plurality of users is associated with an account on the distributed network and a service level and wherein compliance with the service level of a user is determined, at least in part, from the monitored end-user experience, the method comprising [the steps of]:

detecting [when] that a user invokes a connection code to connect a client system to the distributed network;

[when] in response to the user [invokes] invoking the connection code, monitoring the connection code to obtain user experience data about the connection process, wherein the user experience data is data relating to the user's experience with the distributed network; and

transmitting the data obtained from the connection process to an experience test server, wherein the experience test server is a collector of user experience test server.

19. (Amended) The method of claim 24, [18 further comprising a step of allocating tests to] wherein the instructions distribute the network tests over time [and distribute tests over] to available [clients] user devices.

20. (Amended) The method of claim [18] 24, further comprising [a step of]:
checking test quota limits associated with [a client] a user device before instructing the [client] user device to run a test.

21. (Amended) The method of claim [18] 24, further comprising [a step of]:

dynamically controlling a rate of test allocation to distribute tests over a test period based on a current test rate.

22. (Amended) The method of claim [18] 24, further comprising [a step of]:
dynamically changing test allocation among user devices without prior knowledge of number of [client modules] user devices available for testing.